2019 Wyoming Forest Health Highlights

Mountain Pine Beetle

Mountain pine beetle activity detected by aerial survey declined from 34,000 acres in 2015 to 6,300 acres in 2016 to 3,300 in 2017 to 470 acres in 2018. In 2019, 1,000 acres were recorded. (Fig. 1)

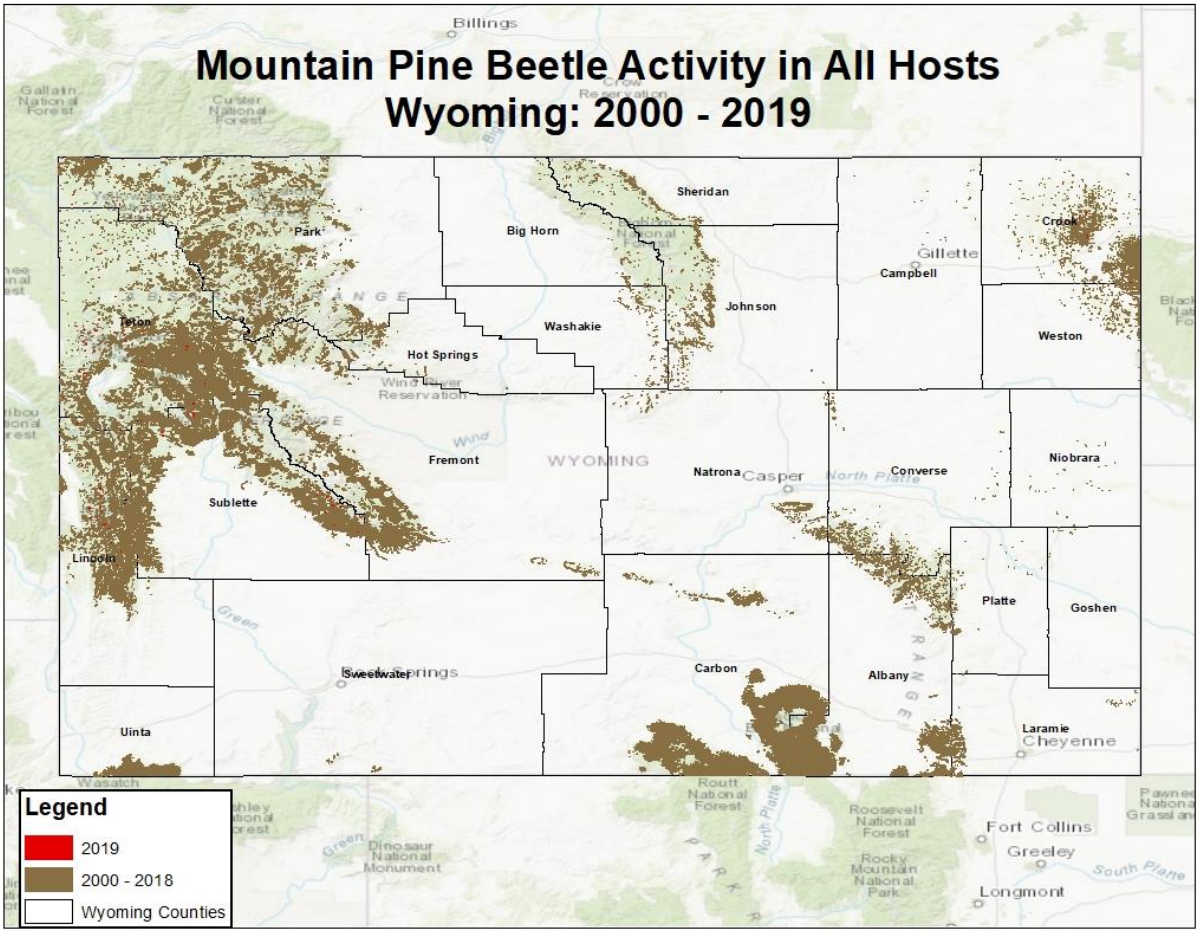

Figure 1. Mountain pine beelte activity in Wyoming from 2000 through 2019. Not all areas are surveyed every year. Due to the nature of aerial surveys, this data will only provide rough estimates of location, intensity and the resulting trend information for agents detectable from the air. Many of the most destructive diseases are not represented in the data because these agents are not detectable from aerial surveys. The data presented should only be used as a partial indicator of insect and disease activity, and should be validated on the ground for actual location and causal agent. The insect and disease data is available digitally from the U.S. Forest Service, Region Two Forest Health Management group. The cooperators reserve the right to correct, update, modify or replace GIS products. Using this data for purposes other than those for which it was intended may yield inaccurate or misleading results. Map courtesy U.S. Forest Service & Wyoming State Forestry Division.

The most recent epidemic has ended across Wyoming. Black Hills forest land was examined by Wyoming State Forestry Division to detect mountain pine beetle activity. There has been a noticeable mountain pine beetle decline observed over the past few years. Engraver beetle activity and infrequent single-tree beetle attacks were scattered. We did not observe any large mortality pockets or beetle outbreaks. In western Wyoming, high elevation five needle pines have been affected by mountain pine beetle and white pine blister rust. In some areas, most of the mature five needle pines have been killed. (Fig. 2)

Figure 2. Dead standing whitebark pine killed by mountain pine beetle and live whitebark pine affected by white pine blister rust, Wyoming Range, western Wyoming. Photo: Ryan DeSantis 2018

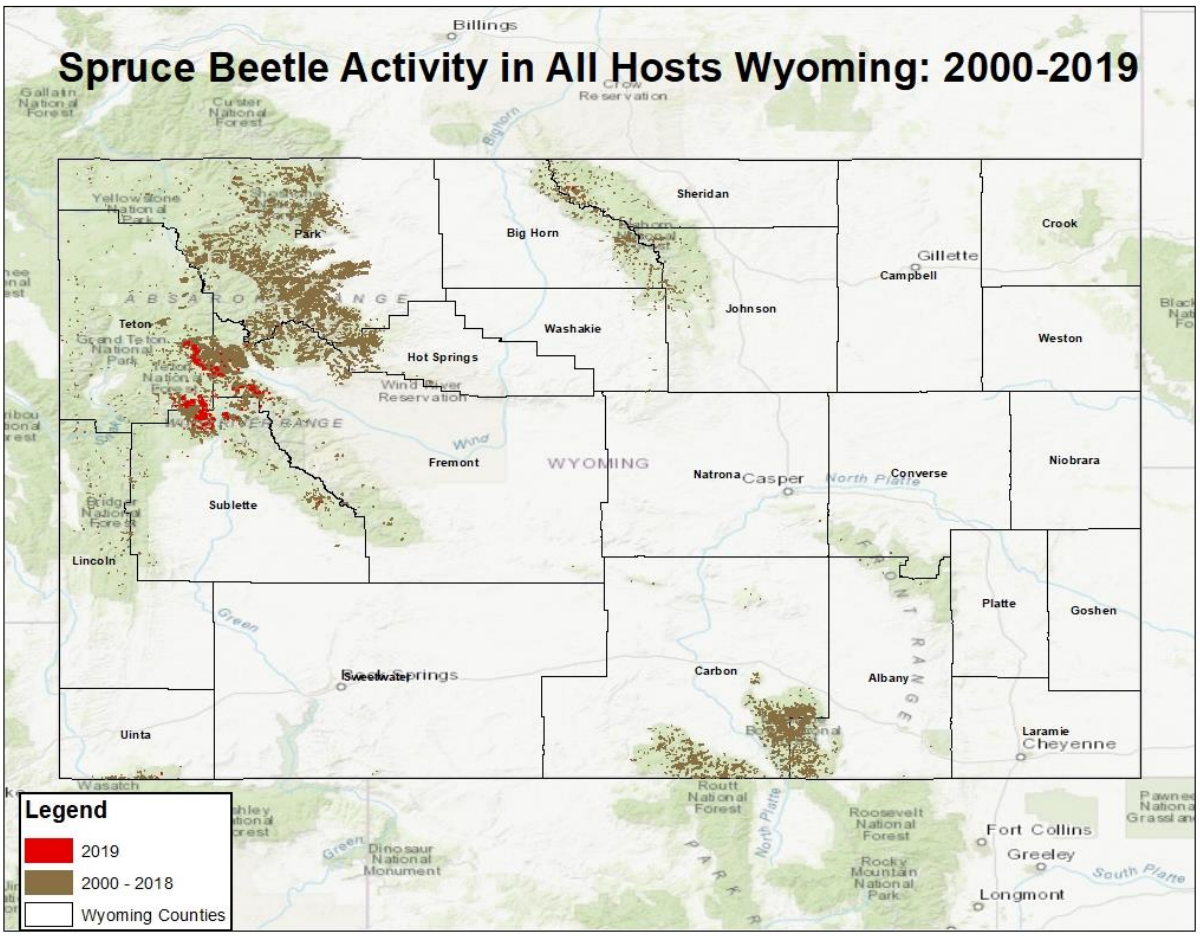

Figure 3. Spruce beetle activity in Wyoming from 2000 through 2019. Not all areas are surveyed every year. Due to the nature of aerial surveys, this data will only provide rough estimates of location, intensity and the resulting trend information for agents detectable from the air. Many of the most destructive diseases are not represented in the data because these agents are not detectable from aerial surveys. The data presented should only be used as a partial indicator of insect and disease activity, and should be validated on the ground for actual location and causal agent. The insect and disease data is available digitally from the U.S. Forest Service, Region Two Forest Health Management group. The cooperators reserve the right to correct, update, modify or replace GIS products. Using this data for purposes other than those for which it was intended may yield inaccurate or misleading results. Map courtesy U.S. Forest Service & Wyoming State Forestry Division

Spruce Beetle

Spruce beetle activity detected by aerial survey declined from 68,000 acres in 2015 to 34,000 acres in 2016 to 28,000 acres in 2017 to 29,000 in 2018. In 2019, 22,800 affected acres were detected (Fig. 3). The vast majority of spruce beetle activity was confined to western Wyoming. Since 1996, over 700,000 acres have been affected by spruce beetle in Wyoming, leaving many dead standing spruce trees in higher elevations. (Fig. 4)

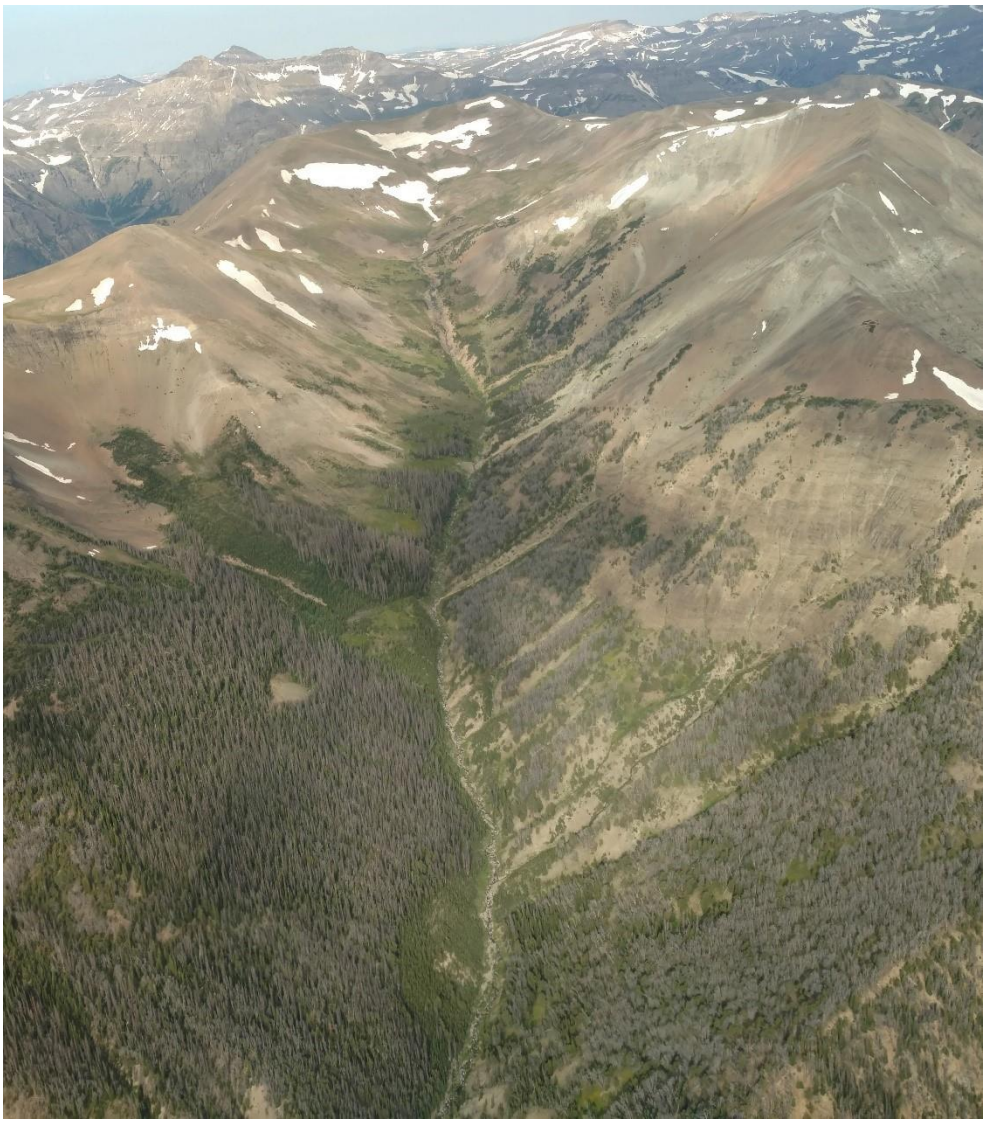

Figure 4. Whitebark pine mortality caused by mountain pine beetle on right side of drainage, Engelmann spruce mortality caused by spruce beetle on left, Absaroka Range, northwestern Wyoming. Photo: Ryan DeSantis 2018

Douglas-fir Beetle

Douglas-fir beetle mortality has been detected on over 433,000 acres across Wyoming since the early 2000s. Recently it has returned to endemic levels. Only 100 acres affected by Douglas-fir beetle were detected by aerial survey in 2019.

Western Spruce Budworm

Western spruce budworm defoliation of Douglas-fir and Engelmann spruce was detected on over 67,000 acres by aerial survey in 2018 and increased to 169,000 acres in 2019. Large budworm-caused defoliation polygons were mapped primarily in the southern Bighorns and western Wyoming (Fig.5).

Western spruce budworm larvae feed on Douglas-fir, Engelmann spruce, and subalpine fir foliage in the spring. Larval feeding can decrease growth, kill the tops of trees, or kill trees outright if heavy defoliation occurs across multiple years. Defoliation of large areas can lead to a brownish cast to the forest (Fig. 6).

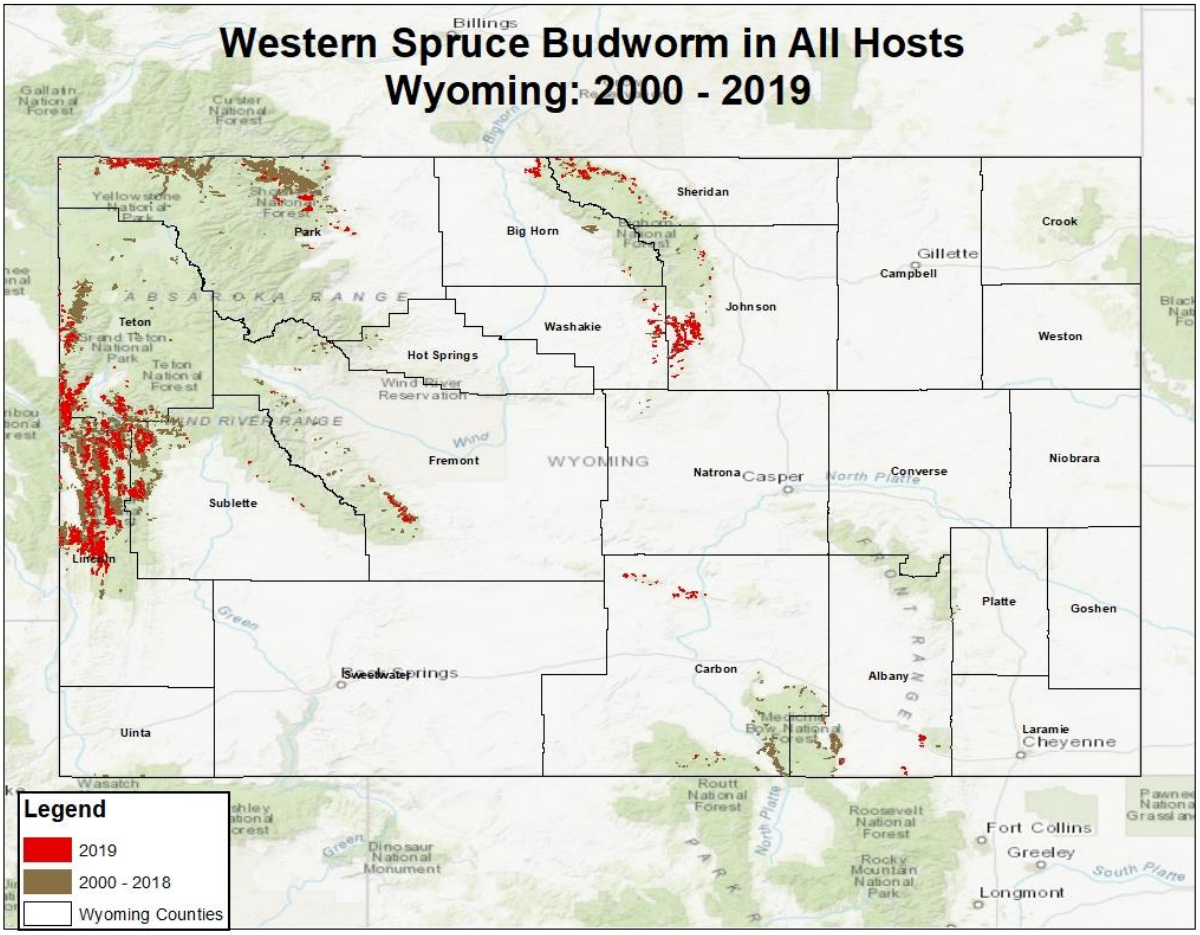

Figure 5. Western spruce budworm activity in Wyoming from 2000 through 2019. Not all areas are surveyed every year. Due to the nature of aerial surveys, this data will only provide rough estimates of location, intensity and the resulting trend information for agents detectable from the air. Many of the most destructive diseases are not represented in the data because these agents are not detectable from aerial surveys. The data presented should only be used as a partial indicator of insect and disease activity, and should be validated on the ground for actual location and causal agent. The insect and disease data is available digitally from the U.S. Forest Service, Region Two Forest Health Management group. The cooperators reserve the right to correct, update, modify or replace GIS products. Using this data for purposes other than those for which it was intended may yield inaccurate or misleading results. Map courtesy U.S. Forest Service & Wyoming State Forestry Division.

Figure 6. Discolored and defoliated Douglas-fir from western spruce budworm feeding, Absaroka Range, northwestern Wyoming. Photo: Kurt Allen 2018.

Subalpine fir decline and Western Balsam Bark Beetle

Subalpine fir decline and western balsam bark beetle damage can be found throughout Wyoming's spruce-fir forests. Mortality of subalpine fir is often less pervasive than in associated spruce, but often becomes more noticeable after successive years of damage. Subalpine fir decline affected 5,200 acres and western balsam bark beetle affected 5,700 acres in 2019 throughout Wyoming.

Monitoring for Non-native Invasive Insects

Monitoring for non-native invasive insects continues. Balsam woolly adelgid has caused substantial subalpine fir mortality in the northwestern U.S. It has been positively identified nearby in northern Utah, southeastern Idaho and southwestern Montana, but not yet in Wyoming. Wyoming State Forestry Division assists USDA-APHIS PPQ with gypsy moth detection efforts. Gypsy moths were found in traps in Lovell in 2015, Casper in 2016 and Yellowstone National Park in 2018. Subsequent delimiting trapping in Lovell and Casper did not detect any additional moths. Emerald ash borer has not been detected in Wyoming but Wyoming State Forestry Division continues coordinating detection efforts.

Wyoming State Forestry Division

Wyoming State Forestry Division is committed to providing professional forestry service, information, and education to the citizens of Wyoming to achieve resilient forests and communities. In 2019, Wyoming State Forestry Division treated over 4,000 acres in Wyoming, predominantly on private and state lands, as part of forest management and forest health efforts.

For more information or for assistance, please contact:

Wyoming State Forestry Division

Harrison Brookes

Forest Health Program Manager

307-777-5495; harrison.brookes@wyo.gov

Rocky Mountain Region – Forest Health

Jeri Lyn Harris

Forest Health Monitor

303-988-5150; jerilyn.harris@usda.gov